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Captain W. H. Smyth, R.N., President, in the Chair.

William Wakeling Boreham, Esq. of Haverhill, Suffolk, and William Peters, Esq. of Beckenham Place, Kent, were balloted for, and duly elected Fellows of the Society.

The following communications were read:—

I. On the Longitude of Paramatta. By C. Rumker, Esq. Communicated by Dr. Lee.

The object of this communication is to shew that the method of determining the longitude by means of moon-culminating stars can be extended to large meridional differences. The observations of the moon and moon-culminating stars made at Paramatta are compared with those made at Greenwich, Paris, Abo, and Konigsberg, and the results have proved satisfactory. The correction to the assumed east longitude, $10^h\ 4^m\ 6^s{\cdot}25$, from the mean of all the observations, is $+\ 0^s{\cdot}967$; whence the resulting longitude is $10^h\ 4^m\ 7^s{\cdot}217$.

II. Observations of the Great Comet of 1844–5, made at the Cape of Good Hope, by T. Maclear, Esq., extracted from a letter to the Astronomer Royal. Communicated by the Astronomer Royal.

" *Cape Point Station, January* 3, 1845.

" Another splendid comet ornaments our western horizon, first seen by Captain Wilmot from Sea Point, west of the *Lion's Rump*, on the 19th of December: it set at the same time by estimation with *Mercury*.

" It was seen on the same evening by myself from the station, the tail shooting above the edge of a nimbus or cloud-bank, but I doubted whether it might not be one of those beams that occasionally appear from behind a cloud with the setting sun. Foul weather prevailed until the 24th, when we had a short glimpse of it from the observatory over a south-eastern cloud upon the Devil's Berg. Christmas evening cloudy—rain on the 26th. I have since observed it here when practicable with the Beaufort theodolite, the only

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instrument I can command. But I have received the following observations from Mr. Mann, made at the observatory.

	Cape Mean Time.	Approximate Places. Right Ascension.	Approximate Places. Declination.
	d h m	h m s	° ′
1844, Dec.	24 8 20	19 43 30	38 18 South
	27 8 20	20 16 44	41 3
	28 8 30	20 28 37	41 51
	29 9 23	20 40 42	42 32

"My observations here are differences in altitude and azimuth from α *Gruis* and Fomalhaut.

"On the 24th the tail was about 7° long, and seemed to be parallel to the equator. On the 28th I measured the length, and found it to be 8°—brushy and slightly curved (sword shape) towards the north. Difference in azimuth of head and tail 1° 45′, the head being most southerly, at 4ʰ Cape sidereal time.

"January 1, the tail is parallel with the arc of a great circle joining α and β *Gruis*, and extends to midway between these stars, being seemingly about 9° in length. The head is bright, and the general outline more sharp and clear than the great comet of March, 1843."

III. Results of Observations of De Vico's Second Comet, and of the Great Comet of 1844–5, extracted from a letter to the Astronomer Royal, from Professor Schumacher.

1. Observations at Rome.

	Mean Time.	Right Ascension.	Declination.
	d h m s	h m s	° ′ ″
Feb.	25 11 15 39·2	11 44 2·20	+55 5 8·5
	26 7 2 57·6	11 38 8·4	54 46 43·5

2. Observations at Paris.

	d h m s	° ′ ″	° ′ ″
March	6 12 36 33	158 28 18·6	+49 6 41·3
	7 8 28 41	156 51 17·2	48 15 10·4
	7 8 54 13	156 49 8·5	48 14 2·7
	8 8 0 55	154 57 31·4	47 9 57·7

Mr. Faye has calculated from these observations the following elements.

Perihelion Passage, 1845, April 12·85112, Paris Mean Time.

Perihelion ... 191° 53′ 27″ } Mean Equinox, Jan. 1. Parallax and
☊ .... 346 59 41 } aberration *not* taken in account.
Inclination...... 56 45 44
Log. q............0·1015077. Motion direct.

The middle observation is represented to — 2″·7 in long. } Calcul.—observ.
——— + 1·5 latit. }

3. Observations made at Hamburg.

	d h m s	° ′ ″	° ′ ″
March	10 10 13 43·5	151 2 20·7	+44 36 25
	12 8 34 8·4	147 33 20·2	41 54 23·6
	14 8 43 19·6	144 8 25·9	38 48 54·5

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